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SEP 12 2006

Docket No.: 04-04 US

REMARKS

This Amendment responds to the Office Action mailed June 12, 2006 in the above-identified application. Based on the foregoing amendments and the following comments, reconsideration and allowance of the application are respectfully requested.

Claims 1-20 were previously pending in the application. Claims 6-8, 14, 16 and 19 have been withdrawn from consideration by the Examiner. By this amendment, claims 1, 3, 11, 12, 17 and 18 have been amended. Claim 2 has been canceled without prejudice or disclaimer. Accordingly, claims 1, 3, 9-11, 13, 15, 17, 18 and 20 are currently under consideration, with claims 1, 11 and 17 being independent claims. As discussed below, the Examiner is requested to transfer claims 8 and 19 to the elected species. No new matter has been added.

Regarding Applicant's election of the species of Figs. 4A and 7, the Examiner asserts that claims 8 and 19 appear to read on the species of Fig. 9 and has withdrawn claims 8 and 9 from consideration as being directed to a non-elected species. Reconsideration is respectfully requested. Applicant does not dispute that claims 8 and 19 read on the species of Fig. 9. However, Applicant submits that claims 8 and 19 also read on the species of Figs. 4A and 7. The synchronization device 228 shown in Fig. 4A includes substantially flat sections 202-208. The connection of the synchronization device in the scroll pump is described at page 7, line 3 to page 8, line 24 of the specification. It is clear that two of the substantially flat sections on opposite sides of the synchronization device are coupled to one of the scroll elements and the other two substantially flat sections on opposite sides of the square configuration are coupled to the other scroll element. Thus, claims 8 and 19 read on the species of Figs. 4A and 7, and addition of claims 8 and 19 to the elected species of Figs. 4A and 7 is respectfully requested.

The Examiner has rejected claims 1, 2, 3, 9-11, 13, 15, 17, 18 and 20 under 35 U.S.C. §102(b) as anticipated by any one of Busch et al. (US 3,560,119) or Vulliez (US 3,802,809) or Pottier et al. (US 6,022,202). Claims 4, 5 and 12 are indicated to be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. The rejections are respectfully traversed in view of the amended claims.

Busch discloses a scroll type device wherein a "flexible sleeve 50 of rubber or other resilient material" helps retain disk 39 in its angular position (col. 5, lines 56-58).

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Vulliez discloses a scroll type device wherein a metallic bellows 11 is connected between fixed and orbiting scroll members.

Pottier discloses a scroll type device wherein a metal bellows 160 is connected between fixed and orbiting scroll members.

Amended claim 1 is directed to scroll pumping apparatus and requires, in part, a first scroll element, a second scroll element, a drive mechanism for producing orbiting motion of the second scroll element relative to the first scroll element, and a synchronization device. The synchronization device comprises a strip having connected, substantially flat sections coupled between the first and second scroll elements. The synchronization device has a generally square configuration as viewed along the axis of the drive mechanism. A synchronization device having a generally square configuration as viewed along the axis of the drive mechanism is illustrated by way of example in Figs. 1-4, 4A, 4B, 5, 6 and 9 of the present application.

Scroll pumping apparatus having a synchronization device as defined by amended claim 1 is not disclosed or suggested by Busch, Vulliez or Pottier. Each of the cited references discloses a device coupled between the scroll elements, the device having a circular configuration as viewed along the axis of the scroll device. The devices disclosed by Busch, Vulliez and Pottier are easily deformable by axial loads during operation of the scroll device. By contrast, the synchronization device recited by amended claim 1 has high axial stiffness and exhibits a very small deformation along the axis of the scroll device as a result of axial loads during operation of the scroll pumping apparatus. In summary, Busch, Vulliez and Pottier do not disclose a synchronization device having a generally square configuration as viewed along the axis of the apparatus. For these reasons, amended claim 1 is clearly and patentably distinguished over Busch, Vulliez and Pottier, and withdrawal of the rejection is respectfully requested.

Claims 3-10 depend from claim 1 and are patentable over the cited references for at least the same reasons as claim 1.

Amended claim 11 is directed to scroll pumping apparatus and requires, in part, a scroll set comprising a stationary scroll element and an orbiting scroll element, a drive mechanism operatively coupled to the orbiting scroll element, and a synchronization device comprising a strip having connected, substantially flat sections, coupled between the orbiting scroll element and a stationary component of the scroll pumping apparatus. The synchronization device has a generally square configuration as viewed along the axis of the drive mechanism.

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Amended claim 11 is clearly patentable over Busch, Vulliez and Pottier for the reasons discussed above in connection with claim 1. In particular, Busch, Vulliez and Pottier do not disclose or suggest a synchronization device having a generally square configuration as viewed along the axis of the drive mechanism. Each cited reference discloses a device coupled between the scroll elements, the device having a circular configuration as viewed along the axis of rotation. For these reasons and for the reasons discussed above in connection with claim 1, amended claim 11 is clearly patentable over Busch, Vulliez and Pottier. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 12-16 depend from claim 11 and are patentable over the cited references for at least the same reasons as claims 1 and 11.

Amended claim 17 is directed to a method for operating scroll pumping apparatus of the type comprising a first scroll element and a second scroll element. The method comprises producing orbiting motion of the second scroll element relative to the first scroll element with respect to an axis of rotation, and synchronizing the first scroll element and the second scroll element during the orbiting motion with a synchronization device, comprising a strip having connected, substantially flat sections, coupled between the first scroll element and the second scroll element. The synchronization device has a generally square configuration as viewed along the axis of rotation.

Amended claim 17 is clearly and patentably distinguished over Busch, Vulliez and Pottier for the reasons discussed above in connection with claims 1 and 11. In particular, Busch, Vulliez and Pottier do not disclose or suggest synchronizing first and second scroll elements with a synchronization device having a generally square configuration as viewed along the axis of rotation. Each cited reference discloses a device coupled between the scroll elements, the device having a circular configuration as viewed along the axis of rotation. For these reasons and for the reasons discussed above in connection with claims 1 and 11, amended claim 17 is clearly and patentably distinguished over Busch, Vulliez and Pottier. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 18-20 depend from claim 17 and are patentable over the cited references for at least the same reasons as claim 17.

Since the amended independent claims are allowable, the Examiner is requested to allow non-elected claims 6-8, 14, 16 and 19, which depend from the independent claims.

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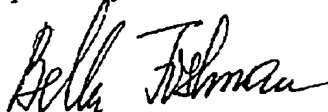
Based upon the above discussion, claims 1 and 3-20 are in condition for allowance.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time.

Respectively submitted,



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